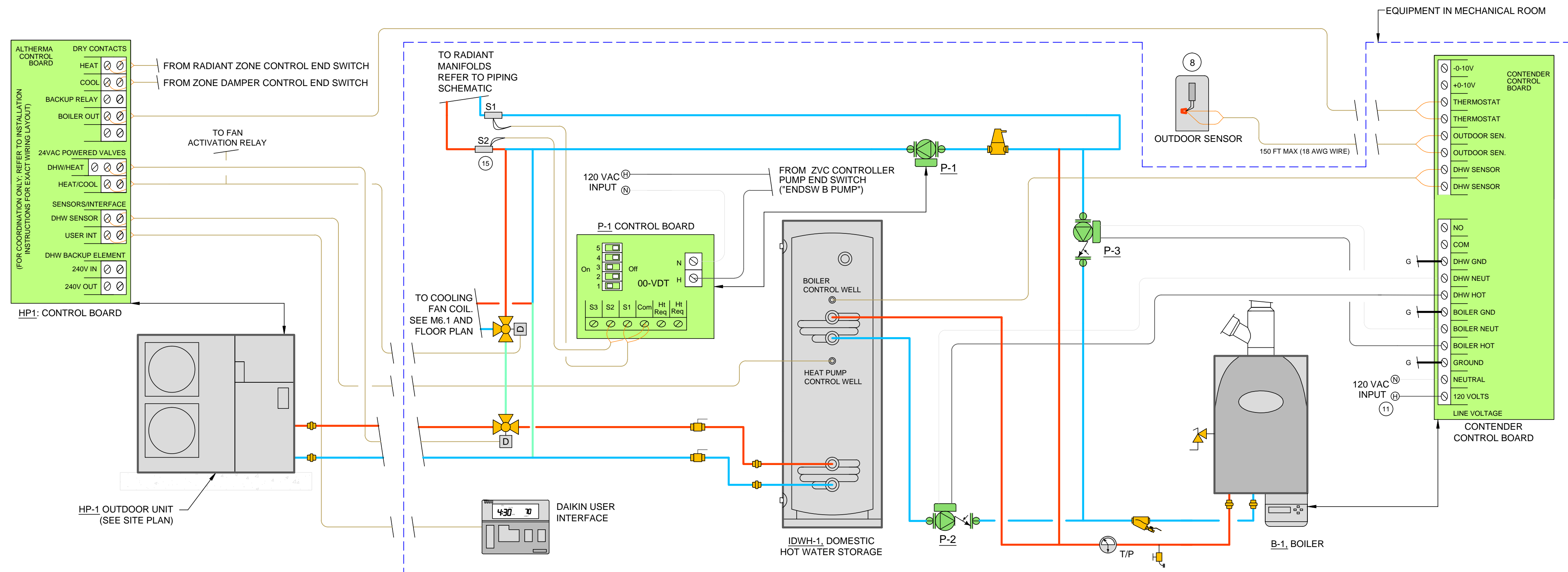


1 TYPICAL WIRING EXAMPLE FOR ZONE CONTROLLERS*

NOT TO SCALE

*NOTE: THIS DETAIL IS A TYPICAL WIRING EXAMPLE AND DOES NOT REPRESENT THE EXACT WIRING CONFIGURATION PERTAINING TO THIS PROJECT. REFER TO M6.1 FOR EXACT ZONE CONTROLLERS, THERMOSTATS AND ZONING REQUIRED.



2 HEATING SYSTEM CONTROL SCHEMATIC - CONTENDER BOILER AND SOLAR WITH IDWH

NOT TO SCALE

NOTES

GENERAL

- This drawing is conceptual and diagrammatic and does not constitute a complete plan. Installer to supply and install all materials shown on this plan and all others needed to complete this hydronic system. Also, provide any incidental work not shown or specified, which can be reasonable inferred as belonging to the work necessary to provide the complete system.
- Only qualified Plumbing or Heating technicians shall install the heating system. Installer of Daikin Equipment shall have factory certification. Refer to all manufacturer guidelines pertaining to the installation, protection and maintenance of the heat source.

SUBSTITUTION

- Installer shall obtain authorization from the owner and design team for "Or Equal" substitutions on heating system components "Or equal" substitutions constitute components that are of equal quality and workmanship to those specified. Where possible components shall be of a single manufacturer and shall have approved ratings of all applicable agencies (UL, IAPMO, ASME, etc.)

CONTROLS

- Outdoor reset, Boiler Pump, Domestic water pump and temperature control per Elite and Altherma control systems. Refer to Elite and Altherma design manuals for wiring.
- Control systems shall be complete, tested and fully operational prior to system balancing.
- Thermostats shown are Tekmanet communicating thermostats. For other thermostats refer to manufacturer wiring instructions. Thermostats shall be programmable setback type, 120VAC hard wire with battery backup and min 7 day programmable, 4 time period function.
- Outdoor sensors should be placed in free air away from direct sunlight or other heat sources (preferably the north side of the building).
- Indoor air sensors shall be placed at approximately the 5' level on an interior wall out of direct sunlight unless otherwise specified by the manufacturer.
- Fan battery powered Thermostats 3rd wire (common) is not used.
- Ground wires not shown for clarity. Ground all circuits per NEC and local code. Refer to manufacturer's wiring guides.
- Telestats shall be 24 V actuated compatible with approved manifolds. End switch wires (2) on 4 wire telestats typically not used, typ.
- All exposed wiring shall be protected in conduit per NEC.
- Sensors shall be placed minimum 10 pipe diameters downstream of tees and mixing devices.

SEQUENCE OF OPERATION

Heating:

- The Daikin 3-way diverting valves shall normally divert water to the radiant heating circuit in the normally open position (de-energized).
- A call for heating from any thermostat to the Taco ZVC zone valve control shall open the matched zone actuator.
- The master ZVC controller engages the variable speed pump P-1 when there is a call for heat. P-1 delivers flow to the system based on temperature drop at sensors S1 and S2. P-1 shall be set to 15°F delta T temperature drop.
- The heating relay from the master ZVC zone control shall activate the Daikin Heat pump in the heating mode. The Daikin pump energizes and heating water is injected into the radiant circuit.
- If the outdoor temperature drops below 55°F the bi-valent mode of the HP-1 will automatically engage B-1 as a second stage of heating (HP-1 steps operation in this mode). B-1 injects heat into the radiant circuit per its outdoor reset control and Elite boiler sequence control. See Elite controls installation manual for a detailed sequence of operation.

Cooling:

- If domestic hot water and heating has been satisfied, a call for cooling shall activate the Daikin 3-way diverting valve to divert water to the fan coil.
- A call for cooling from any thermostat to the Honeywell control shall open the matched zone damper and activate the fan at the fan coil.
- The cooling relay from the Honeywell control shall HP-1 in the cooling mode. The Daikin pump energizes and cooling water is delivered to the fan coil.
- A normally closed relay shall open, disengaging the fan, when there is a call for radiant heating or domestic water heating priority to ensure the fan does not run during such periods.

Domestic Water Heating:

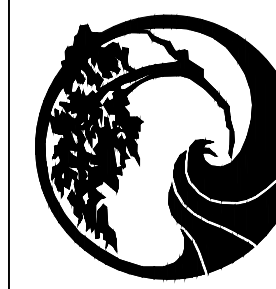
- A call for domestic water heating at the domestic water storage tank (IDWH-1) shall cause the Daikin control to energize the 3-way valve to divert heating water to the domestic water storage tank (IDWH-1).
- The normally closed relay shall open, disengaging the fan, when there is a call for domestic water heating priority to ensure the fan does not run during a call for heating or cooling.
- If the temperature of the tank falls below 100°F (boiler control well), B-1 shall heat the tank to set point per the Elite sequence of operation. Set point shall be 125°F with 25°F differential.

LEGEND

	BALL VALVE		PRESSURE REDUCING VALVE
	TEMPERATURE GAUGE		AIR VENT
	TEMPERATURE/ PRESSURE GAUGE		STRAINER
	UNION		3-WAY MOTORIZED DIVERTING VALVE
	SUPPLY AND RETURN MANIFOLD		AIR SEPARATOR
	HOSE BIB/DRAIN/ PURGE VALVE		THERMOSTATIC MIXING VALVE
	CHECK VALVE - SPRING		ESB ZONE VALVE
	BACKFLOW PREVENTER		PUMP W/INTEGRAL FLOW CHECK
	PRESSURE RELIEF VALVE		4-WAY MOTORIZED MIXING VALVE
	EXPANSION TANK		3-WAY MOTORIZED MIXING VALVE
	24VAC TRANSFORMER (FIELD SUPPLY)		
	RELAY		

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CONTROLS SCHEMATIC

DATE: 01/13/2014

SCALE: AS NOTED

DRAWN: MEG

CHECKED:

FILE NAME:

SHEET:

M6.2
SHEET OF SHEETS